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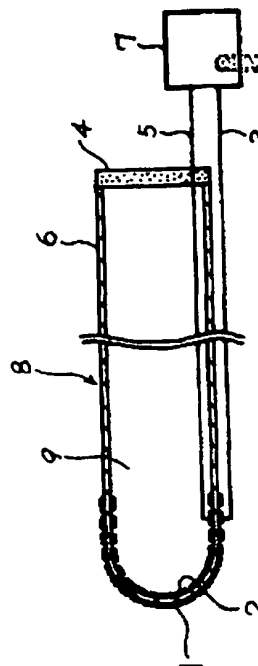
APPLICATION DATE : 14-11-78  
APPLICATION NUMBER : 53139965

APPLICANT : TORAY IND INC;

INVENTOR : NAKAYAMA TAKAO;

INT.CL. : G01N 27/58

TITLE : OXYGEN SENSOR USING SOLID  
ELECTROLYTIC MATERIAL



**ABSTRACT :** PURPOSE: To preserve for a long time the initial performance of oxygen sensor making use of oxygen concentration cell of solid electrolytic material, by maintaining the electric current which flows in the external circuit during measuring due to an electromotive force under a predetermined level.

**CONSTITUTION:** A cylindrical solid electrolytic tube 6 having a U-shaped cross- section and closed at its one end is charged with a reference gas 9 the oxygen concentration of which is known. The other end of the tube 6 is closed by a tabular sealing member 4 to form a closed container. The object gas is made to contact the outer surface of the container 8 so that an electromotive force is generated between porous electrodes 1, 2 disposed inside and outside the solid electrolytic tube 6. The electromotive force is detected by an external circuit 7 through lead wires 5, 3. The value of the electric current flowing in the external circuit 7 is limited to be smaller than 1nA per 1cm<sup>3</sup> of the reference gas. The inside volume of the closed container 8 preferably falls between 0.001 and 10cm<sup>3</sup>.

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